CLAIMS

What is claimed is:

1. A method of visualizing biological data using component plane presentation comprising the following steps:

(a) providing a matrix of clustered multidimensional biological data where the rows (or the columns) of the matrix are map units representing clusters of individuals mapped to that map unit and the corresponding columns (or rows) represent the components of the data clustering;

(b) presenting the clustered biological data as a neighborhood map comprised of the map units where similar data is mapped to the same or nearby neighboring map units; and

(c) shading the map units of the neighborhood map according to the value of a select component of the data cluster represented by the map unit to provide a component plane presentation to visualize the biological data.

2. The method according to Claim 1 wherein the biological data is from a microarray.

3. The method according to Claim 2 wherein the microarray provides data regarding gene expression.

4. The method according to Claim 1 wherein the map units are shading by color.

5.   The method according to Claim 1 wherein the multidimensional biological data was clustered using an unsupervised learning method.

6.   The method according to Claim 1 wherein the multidimensional biological data was clustered using a self-organizing map method.

7.   The method according to Claim 6 further comprising the step of organizing the multidimensional biological data using a method comprising the steps of:

(i)   providing an input matrix of biological data wherein the different rows (or columns) i represent different experiments and the different columns (or rows) n represent the outputs of the experiment with variations in a parameter; and

(ii)   modeling the data of the input matrix of biological data in an unsupervised, iterative manner to produce output of a matrix of clustered multidimensional biological data where the rows (or the columns) of the matrix are map units representing clusters of individuals mapped to that map unit and the corresponding columns (or rows) represent the components of the data clustering.

8.   The method according to Claim 1 wherein the neighborhood map is comprised of hexagonal map units.

9.   A system for visualizing biological data using component plane presentation comprising

(a)   an array data handling means for storing a matrix of clustered multidimensional biological data where the rows (or the columns) of the matrix are map units representing clusters of data mapped to that map

unit and the corresponding columns (or rows) represent the components of the data cluster;

(b) a visualization means for presenting a neighborhood map comprised of the map units where similar data is mapped to the same or nearby neighboring map units; and

(c) a shading means for shading the map units of the neighborhood map according to the value of a select component of the data cluster represented by the map unit to provide a component plane presentation to visualize the biological data.

10. The system according to Claim 9 wherein said system further comprises:

(d) a clustering means for organizing an input matrix of biological data wherein the different rows represent different experiments and the different columns represent the outputs of the experiment with variations in a parameter wherein the input matrix of biological data is modeled in an unsupervised, iterative manner to produce output of a matrix of clustered multidimensional biological data where the rows (or the columns) of the matrix are map units representing clusters of data mapped to that map unit and the corresponding columns (or rows) represent the components of the data cluster.